

**WHAT IS CLAIMED IS:**

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**CLAIMS**

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1. In a wireless communication system, a method for transmitting a control message from a first entity to a second entity, comprising:

at the first entity, measuring at least one characteristic of a channel through which a signal is received from the second entity to produce channel state information;

forming the control message indicative of the channel state information; and

transmitting the control message from the first entity to the second entity at a particular power level determined based at least in part on the control message.

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2. The method of claim 1, wherein the control message comprises a particular codeword selected from among a plurality of possible codewords.

3. The method of claim 2, wherein the power level is determined based on a minimum distance of the selected codeword.

4. The method of claim 2, wherein the power level is determined based on an expected frequency of the selected codeword being transmitted.

5. The method of claim 2, wherein the power level is determined based on a particular number of times the selected codeword is repeated for a transmission.

6. The method of claim 1, wherein the control message is a data rate control message indicative of a rate for a data transmission requested from the second entity.

7. The method of claim 1, wherein the at least one characteristic comprises a carrier-to-noise-plus interference ratio ( $C/I$ ).

8. The method of claim 1, wherein the control message is selected from among a plurality of data rate control messages.

9. The method of claim 2, wherein the selected codeword has a minimum distance based on quality of the channel.

10. The method of claim 2, wherein the selected codeword has a minimum distance based on frequency in which the control message is transmitted.

11. In a wireless communication system, a method for transmitting a message from a first entity to a second entity, comprising:  
identifying a codeword associated with the message, wherein the identified codeword is one of a plurality of codewords defined for an alphabet, and wherein at least two codewords in the alphabet have unequal distances to their nearest codewords; and  
transmitting the identified codeword from the first entity to the second entity.

12. The method of claim 11, further comprising:  
determining a transmit power level for the identified codeword, and wherein the identified codeword is transmitted at the determined transmit power level.

13. The method of claim 12, wherein the transmit power level for the identified codeword is based at least in part on the distance of the identified codeword to its nearest codeword.

14. The method of claim 12, wherein the transmit power level for the identified codeword is determined to achieve a particular level of performance.

15. The method of claim 14, wherein the particular level of performance is approximately one percent frame error rate or better.

16. The method of claim 11, wherein the message to be transmitted is one of a plurality of possible messages, and wherein the plurality of codewords in the alphabet are assigned to the plurality of possible messages in accordance with a particular assignment scheme.

17. The method of claim 16, wherein the plurality of codewords in the alphabet are assigned to the plurality of possible messages such that messages more likely to be transmitted at higher transmit power levels are assigned with codewords having larger distances to their nearest codewords.

18. The method of claim 16, wherein the plurality of codewords in the  
 2 alphabet are assigned to the plurality of possible messages such that messages  
 more likely to be transmitted are assigned with codewords having larger  
 4 distances to their nearest codewords.

19. The method of claim 11, wherein the alphabet includes N codewords  
 2 having minimum distances of  $d_1$  through  $d_N$ , and wherein the minimum  
 distances conform to the following:

4  $d_1 \geq d_2 \geq \dots \geq d_{N-1} \geq d_N$ , and

$d_1 > d_N$ .

20. The method of claim 11, wherein the message identifies a particular  
 2 data rate for a data transmission requested by the first entity from the second  
 entity.

21. The method of claim 11, wherein the first entity is an access terminal  
 2 in the wireless communication system.

22. The method of claim 11, wherein the wireless communication system  
 2 is a CDMA system.

23. In a wireless communication system, a method for transmitting a  
 2 message from a first entity to a second entity, comprising:  
 identifying a codeword associated with the message, wherein the  
 4 identified codeword is one of a plurality of codewords defined for an alphabet,  
 and wherein at least two codewords in the alphabet may be transmitted with  
 6 different amounts of energy for a particular level of performance under similar  
 link condition;  
 8 determining a transmit power level for the identified codeword; and  
 transmitting the identified codeword at the determined transmit power  
 10 level.

24. The method of claim 23, wherein at least two codewords in the  
 2 alphabet have unequal distances to their nearest codewords.

25. The method of claim 23, wherein the plurality of codewords in the  
 2 alphabet are associate with a plurality of points in a signal constellation, and

wherein at least two points in the signal constellation have unequal distances to their nearest codewords.

26. The method of claim 25, wherein the plurality of points in the signal constellation are selected from points in signal constellations for quadrature phase shift keying (QPSK), M-ary phase shift keying (M-PSK), M-ary quadrature amplitude modulation (M-QAM), or a combination thereof.

27. The method of claim 23, wherein at least two codewords in the alphabet have unequal lengths.

28. The method of claim 27, further comprising:  
encoding the identified codeword in accordance with a particular coding scheme.

29. The method of claim 23, wherein the message to be transmitted is one of a plurality of possible messages, and wherein the plurality of codewords in the alphabet are assigned to the plurality of possible messages such that messages more likely to be transmitted at higher transmit power level are assigned with codewords requiring lower transmit power to achieve the particular level of performance.

30. The method of claim 23, wherein the message to be transmitted is one of a plurality of possible messages, and wherein the plurality of codewords in the alphabet are assigned to the plurality of possible messages such that messages more likely to be transmitted are assigned with codewords requiring less transmit power to achieve the particular level of performance.

31. An access terminal in a wireless communication system, comprising:  
a receiver for receiving a signal from an access network and determining at least one characteristic of a forward link channel through which the signal is received;

a data processor configured to form a control message indicative of a state of the forward link channel; and

a transmitter unit configured to transmit the control message at a particular transmit power determined based at least in part on the control message.

32. An access terminal in a wireless communication system, comprising:

2 a data processor configured to receive and process a codeword for a  
message, wherein the codeword is one of a plurality of codewords defined for  
4 an alphabet, and wherein at least two codewords in the alphabet may be  
transmitted with different amounts of energy for a particular level of  
6 performance under similar link condition; and

a transmitter unit operatively coupled to the data processor and  
8 configured to transmit the processed codeword.

33. The access point of claim 32, further comprising:

2 a controller operatively coupled to the data processor and configured to  
provide a signal indicative of transmit power level to be used for the processed  
4 codeword.

34. The access point of claim 32, further comprising:

2 a signal quality measurement unit configured to receive samples for a  
received signal and to determine a received signal quality of signals transmitted  
4 from one or more transmitting sources, and

wherein the processed codeword is transmitted at a power level based in  
6 part on the received signal quality of a transmitting source to which the  
processed codeword is transmitted.

35. A communication unit in a wireless communication system,  
2 comprising:

a receiver configured to receive a signal from a transmitting source and  
4 determine at least one characteristic of a communication link through which the  
signal is received;

6 a data processor configured to form a message indicative of a state of the  
communication link; and

8 a transmitter unit configured to transmit the message at a particular  
transmit power determined based at least in part on the message.

36. An access point in a CDMA system comprising the communication  
2 unit of claim 35.

37. An apparatus in a wireless communication system, comprising:

2 means for receiving a signal from a transmitting source and determining  
at least one characteristic of a communication link through which the signal is  
4 received;

means for forming a control message indicative of a state of the  
6 communication link; and

means for transmitting the control message at a particular transmit  
8 power determined based at least in part on the control message.

38. The apparatus of claim 37, wherein the control message comprises a  
2 codeword selected from among a plurality of codewords defined for an  
alphabet, and wherein at least two codewords in the alphabet may be  
4 transmitted with different transmit power for a particular level of performance  
under similar link condition.

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